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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,204	08/21/2006	Mark Thomas Johnson	NL 040194	1127

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EXAMINER

SPAR, ILANA L

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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06/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/598,204	JOHNSON ET AL.	
	Examiner	Art Unit	
	ILANA SPAR	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/21/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: Line 12 states *such that is counteracts*, and should be changed to *such that it counteracts*. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Zehner et al. (US Patent Publication No. 2003/0137521).

With reference to claim 1, Zehner et al. teaches an electrophoretic display comprising a drive unit (16, see paragraph 88, lines 2-4), a drive circuitry (22 and 24, see paragraph 88, lines 5-7), and at least one pixel cell that is arranged with drive electrodes (see paragraph 89, lines 10-20) and that contains an electrophoretic media (see paragraph 133, line 6) that is responsive to an electric field applied between said drive electrodes (see paragraph 89, lines 20-24);

wherein said drive unit is arranged to provide said pixel cell with a drive signal via said drive circuitry (see paragraph 88, lines 2-4) and is switchable between a

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monochrome drive scheme (see paragraph 195, lines 1-5) and a grayscale drive scheme (see paragraphs 178-182),

said monochrome drive scheme involving drive signals providing for only two extreme optical pixel states (see paragraph 124, lines 1-2), and

said grayscale drive scheme involving drive signals providing for at least one additional, intermediate pixel state between said extreme states (see paragraph 124, lines 2-3), and

wherein said drive unit furthermore is operative to apply a separate transition drive signal when switching from said grayscale drive scheme to said monochrome drive scheme, whereby said transition drive signal is arranged such that it counteracts the build-up of remnant DC voltage in the pixel cell (see paragraph 196, lines 33-42).

It is understood that the display of Zehner et al., which is capable of providing both the monochrome and grayscale display modes according to the type of image to be displayed (see paragraphs 195 for monochrome driving and paragraphs 178-182 for grayscale driving), would be able to select the correct mode for adjusting the pixels as necessary, according to incoming image data.

With reference to claim 2, Zehner et al. teaches all that is required with reference to claim 1, and further teaches a number of pixel cells that are addressable in image frames, wherein the grayscale drive scheme is employed for image frames that include at least one intermediate pixel state (see paragraphs 178-182) and the monochrome drive scheme is employed for image frames that include extreme states only (see paragraph 195, lines 1-5).

With reference to claim 3, Zehner et al. teaches all that is required with reference to claim 1, and further teaches a memory unit (look-up table) wherein pre-defined drive signals corresponding to the respective drive schemes are stored accessible by the drive unit (see paragraph 70, lines 1-4, paragraph 73, lines 1-3, and paragraph 196, lines 10-13).

With reference to claim 4, Zehner et al. teaches all that is required with reference to claim 1, and further teaches that said transition drive signal drives the pixel cell repeatedly between the two limit color states so as to remove any remnant DC voltage in the pixel cell before the monochrome drive scheme is initiated (see paragraph 196, lines 33-42).

With reference to claim 5, Zehner et al. teaches all that is required with reference to claim 1, and further teaches that said transition drive signal involves a drive signal corresponding to a signal in the grayscale drive scheme (see paragraph 188 – each transition signal takes into consideration the prior grayscale value of the pixel in order to generate the transition signal and have DC balance).

With reference to claim 6, Zehner et al. teaches all that is required with reference to claim 1, and further teaches that the transition drive signal is selected from a transition drive scheme that comprises more than one alternative transition drive signals (see paragraph 196, lines 10-13 – the transition signal is selected from the look-up table, which contains many transition drive signals applicable for different transition scenarios).

With reference to claim 7, Zehner et al. teaches all that is required with reference to claim 1, and further teaches that the transition drive signal is applied when switching to said monochrome drive scheme only when switching from a subset of the pixel states provided for by said grayscale drive scheme (see paragraph 195, lines 1-5).

Zehner et al. teaches that the monochrome drive scheme does not apply transition signals when switching from one monochrome display to another (i.e. black to white or vice versa). It is therefore inherent that the transition signal is only applied to the monochrome drive scheme when the frame preceding the monochrome drive scheme is not also a monochrome drive scheme, i.e. it is a grayscale scheme.

With reference to claim 8, Zehner teaches all that is required with reference to claim 7, and further teaches that said subset of pixel states excludes said extreme pixel states (see paragraph 195, lines 1-5).

As explained above, when the monochrome drive scheme frame is preceded by another monochrome drive scheme frame (i.e. black or white pixels, the extreme pixel states), no transition signal is applied.

With reference to claim 9, Zehner et al. teaches all that is required with reference to claim 1, and further teaches that said transition drive signal involves a drive signal corresponding to a signal in the monochrome drive scheme but modified with an additional remnant DC voltage reducing voltage pulse (see paragraph 196, lines 33-42).

With reference to claim 10, Zehner et al. teaches all that is required with reference to claim 9, and further teaches that said additional remnant DC voltage reducing voltage pulse is employed before said monochrome drive scheme drive signal

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(see paragraph 188 – before the pixel arrives at the correct level it is driven to the extreme pixel states).

With reference to claim 11, Zehner et al. teaches a method for driving an electrophoretic display, said method comprising the steps of:

receiving image information regarding an image to be displayed (see paragraph 82, lines 3-6);

selecting a drive scheme from a monochrome updating drive scheme (see paragraph 195, lines 1-5) and a grayscale updating drive scheme (see paragraphs 178-182), depending on the existence of grayscales in the image to be displayed;

employing a transition signal in case the drive scheme is changed from the grayscale drive scheme to the monochrome drive scheme, said transition signal being such that any remnant DC voltage is reduced (see paragraph 196, lines 33-42);

employing a drive signal that is based on the selected drive scheme and that corresponds to said image to be displayed (see paragraph 188).

It is understood that the display of Zehner et al., which is capable of providing both the monochrome and grayscale display modes according to the type of image to be displayed (see paragraphs 195 for monochrome driving and paragraphs 178-182 for grayscale driving), would be able to select the correct mode for adjusting the pixels as necessary, according to incoming image data. Additionally, each transition signal takes into account the prior display state and the desired (future) display state, and uses them both as a basis the driving signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ILANA SPAR whose telephone number is (571)270-7537. The examiner can normally be reached on Monday-Thursday 8:00-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571)272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

ILS